

## Crystal chemistry and comparison of mineralogical composition of Eocene volcanic rocks and their basic enclaves in north of Anarak (NE of Isfahan province)

M. Sayari<sup>1</sup>, I. Noorbehesht<sup>1</sup>, GH. Torabi<sup>1</sup>, A. Davoudian Dehkordi<sup>2</sup>

1) Department of Geology, Isfahan University

2) Faculty of Agriculture, Shahre-Kord University

E-Mail: m.sayari@gmail.com

(Received: 12/4/2006, in revised form: 23/10/2007)

**Abstract:** Eocene volcanic rocks of north Anarak area are as scattered as masses. These rocks cross the Anarak schists and Ashin-Zavar ophiolites but had not metamorphosed them. Their outcrops follow the direction of within the area faults. Mineralogically, these rocks are limited in composition from Andesi-Basalt and Andesite to Dacite. These rocks have phenocrysts of amphibole and plagioclase in microcrystalline and microlitic matrix. The andesitic and andesibasaltic rocks in the study area have a lot of enclaves that contain many amphiboles. Type of the amphiboles is Magnesiohastingsite. Similarity of composition of amphiboles and biotites in the volcanic rocks and their enclaves indicate that these volcanic rocks and their enclaves are possibly cogenesis. There are three types of feldspar in these rocks that are andesine-oligoclase, alkali feldspar and bytownite. Bytownite is found only in certain enclaves. Geothermometry studies on phenocrysts of plagioclase and amphibole, that are in equilibrium, indicate that crystallization temperature of these phenocrysts is 835°C to 925°C.

**Keywords:** Eocene volcanic rocks, Enclave, Anarak, Microprobe analysis, Geothermometry.